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Documentation (Approval etc...)

Food Processing Product Development

2020

Food Processing - Product Development Business Plan

Fanshawe College

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STAGE-GATE 2

BUSINESS PLAN FOR NEW PROGRAMS

Completed Business Plans must be submitted to the Centre for Academic Excellence three weeks in advance of the next Academic Leadership Team (ALT) meeting and two weeks in advance of the next Senior Leadership Council (SLC) meeting.

Dean/Associate Dean/Developer responsible for this new program proposal: Tracy Gedies, James Smith, Tracy Jones
Curriculum Consultant assigned: Patti Kaye
Date Submitted: 2/4/2020

1.0 Program Specifications

Proposed program title: Research and Development in Food Innovation

Proposed credential:

- ☐ Local Board Approved Certificate
- ☐ Ontario College Certificate
- ☐ Ontario College Diploma
- ☐ Ontario College Advanced Diploma
- ☒ Ontario College Graduate Certificate
- ☐ Collaborative Degree
- ☐ Degree

MTCU program code (if it exists): n/a

MTCU program code comparators:

63111 Culinary Innovation & Food Technology at Niagara

https://www.canadianfoodandwineinstitute.ca/program/culinary-innovation-food-technology/

Proposed Classification of Instructional Program Codes, formatted as ##.####:

01.1001 - Food Science
12.0509 - Culinary science
30.1901 - Nutrition sciences

For additional information, please refer to most recent Classification of Instructional Programs (CIP) Canada published by Statistics Canada, available on http://www.statcan.gc.ca/.
Projected four-digit National Occupational Classification Codes (3 maximum), formatted as ####: **1. 3132 "Dietitians and Nutritionists"** 2. 3. *For additional information, please refer to most recent National Occupational Classification (NOC) Canada published by Statistics Canada, available on http://www.statcan.gc.ca/.*
Identify all deliveries of this or a comparable program that have been or are currently offered at Fanshawe (including CE and/or Regional Campuses): **Describe deliveries: n/a**
Proposed program launch date: Fall 2021
Proposed intake(s): ☒ Fall ☐ Winter ☐ Spring ☐ Other:
Number of students in first intake: 40 (20 domestic & 20 international)
Length of program: • Number of semesters: 2 • Semester length in weeks: 15 • Total program hours: 645
Program delivery (check as many as apply) ☒ Web-facilitated (face-to-face) ☒ Blended ☐ Online ☐ Fast-track ☐ Accelerated ☐ Collaborative ☐ Weekend ☐ Other
Co-op program ☐ No Co-operative Education component is required ☐ The Co-operative Education component is a required element ☒ There is a Co-operative Education stream and a non-Co-operative Education stream

2.0 Executive Summary

Include the following information (600 words maximum):

a) Program Overview: length, credential, description and suggested delivery options
b) Strategic Alignment: explain how this program is aligned with the indicated program area of strength and/or expansion (150 words recommended maximum)
c) Competition: Local, regional, provincial and/or national fit/competition

d) Pathways: Links to further educational opportunities
e) Student Demand: interest in the program locally and provincially
f) Labour Market Demand: support for the program, job opportunities for graduates

a) Overview

The Research and Development in Food Innovation (RDFI) program is a two-semester graduate certificate, offered in a web-enhanced delivery format with a planned launch of fall 2021. As a recommendation of the advisory panel meeting, a co-op option and mentorship are being investigated. This program combines instruction in food science, therapeutic nutrition, sensory evaluation, food research and development, and culinary creativity with business courses in quality assurance and industry engagement. Students will apply their unique ability to combine culinary creativity with food science that will lead to careers as product developers, new product marketing coordinators, food research and development specialists, food technologists and/or research product managers in the growing agribusiness, food manufacturing and processing industry. A co-op experience in addition to the two semesters will provide a beneficial hands-on experience for students.

b) **Strategic Alignment**

This program aligns most with the College's Business and Management, Leadership and Entrepreneurship areas of *strength* and areas of *expansion*. It also aligns with the following priorities listed in the Integrated Master Academic Priorities Plan:

- Mature Learning Strategy
- Internationalization
- Research

c) **Competition** There are no local programs of a similar nature. As such, this program will enjoy a captive target group from southwestern Ontario without competition. This program is niche, providing students with the skills to work alongside food scientists taking innovative food ideas to the testing labs and on to the market.

d) **Pathways:** There are currently 19 Culinary Management diploma programs and 5 Nutrition and Food Services Management diploma programs that are viewed as feeder programs for this proposed program. In addition, there is a logical connection between this program and the Agri-Business and Research and Evaluation graduate certificate programs offered at Fanshawe; this includes an overlap in a couple of courses creating a pathway for students. This would be especially attractive to international students. George Brown College offers an Honours Bachelor of Commerce with a specialization in Culinary Management, which presents a good fit for pathway development. Further, Fanshawe presently maintains an articulation agreement with Western University and Brescia College that enables a pathway from the Nutrition and Food Services Management diploma program at Fanshawe to the Bachelor of Science (Food and Nutrition) Honours degree program at Western/Brescia. A new articulation agreement will be investigated with Western and Brescia both to and from this new program. Additional pathways will be explored to and from this program connecting it with agri-business/agri-science and nutritional programs at universities both at home and abroad.

e) Student Demand

The Culinary Innovation and Food Technology advanced diploma offered at Niagara College has enjoyed an average of 61.6 students applying to their program for the last 5 years. The actual enrollments to this program are quite a bit lower at 17, 23, 23, and 19 for the past 4 years respectively; these enrollments include international students and may be capped due to lab capacity. Other than 2017, a few students each year from Fanshawe's catchment area applied to Niagara's program over the past 5 years.

It is also noteworthy that there are 19 potential feeder programs for this graduate certificate in the province via their culinary and nutrition diploma programs. George Brown has by far the highest application and enrollment rates than the rest, although Humber and Algonquin are also high. There is also a relatively high number of international students enrolling in these colleges; for example, there were 227, 251, and 104 international students enrolled in these diplomas at Centennial, George Brown and Niagara colleges, respectively.

Student survey: Of the sixty-two students from the Culinary Management program who were surveyed in the last two weeks of November 2019, 29 indicated they would be interested in taking this program, while 33 said they would not. Of the sixty-two that answered the second question, 46 said they would recommend this program to a friend, whereas 16 said they would not. Given that 29 students said they would be interested in taking this program and 46 said they would recommend this program to a friend, it can be established that in the Culinary Management program alone, there is a fair amount of interest in this new developing graduate certificate.

f) Labour Market Demand

The closest NOC code to this type of career is 9465 "Testers and Graders, Food and Beverage Processing". According to the Program Development Data Report produced by Institutional Research, Fanshawe College, employment in this occupation is forecasted to increase by 5.3% for the period 2019-2026. It had previously increased by 0.5% from 2017-2019. Elgin-Middlesex-Oxford (EMO) has a comparative advantage with 74% more testers and graders, food and beverage processing than other regions in the country (for 2019). The location quotient in the report of 1.74 indicates that EMO has a higher share of this occupation than the province and country. Although this is a small occupation, when digging deeper, this very high location quotient is expected to rise by 12.6% over the next 7 years. All of the new jobs can be attributed to the regional competitiveness of this area and are related to the information provided below from the London Economic Development Corporation (LEDC).

The LEDC has identified London as "an ideal test market for companies developing new (food) products prior to nationwide launch." (ledc.com/food-processing) Top multinational companies/employers in the London area include Nestle Canada, Cargill, ABIvBEV, Pepsico, Dr. Oetker Pizza Factory, the Original Cakerie, McCormick, and Natra. The LEDC is actively engaging in a campaign to bring even more Argi-Food manufacturing businesses to London Ontario. A meeting with the advisory panel of local industry experts on February 10, 2020 confirmed that this industry is currently and will continue to grow significantly over the coming years. The panel recommended consideration of additional pillars or streams in this industry to support this trajectory.

In an interview on November 27, 2019, Jack Adams of the LEDC stated that they are expecting 2-3 new food-processing businesses to join the sector in our region for the next 10-15 years. Maple Leaf

Foods will soon be opening a new plant on Veterans Memorial Parkway near Dr. Oetker. He stated that new growth is expected to continue and that London and Canada as a whole is investing heavily in agri-business and food processing.

Every week there are jobs listed on the job search boards for which graduates of this program would be suitable.

3.0 Academic Programming and Quality Assurance

3.1 Program Vocational Learning Outcomes
Consultation: CAE

→ See ***Appendix A: Form 1 – Program Vocational Learning Outcomes.***

3.2 Essential Employability Skills Learning Outcomes
Consultation: CAE

→ See ***Appendix A: Form 2 - Essential Employability Skills Outcomes.***

3.3 Program Description
Consultation: CAE and Registrar's Office

→ See ***Appendix B: Program Description.***

3.4 Course Descriptions
Consultation: CAE

→ See ***Appendix C: Program Curriculum.***

3.5 Relationship to Professional or Licensing Bodies
Consultation: CAE

→ See ***Appendix D: Regulatory Status Form.***

3.6 Curriculum Design and Delivery

→ See ***Appendix E: Curriculum Map - Program VLOs and EESOs.***

a) Provide rationale for curriculum design and delivery methods (e.g., face-to-face, blended, online, fast track, accelerated, collaborative; full-time vs. part-time), including work integrated learning (if appropriate):

1. Alignment with program vocational learning outcomes
2. Alignment with essential employability skills outcomes
3. Suitability for target populations(s)

b) Indicate where and how existing courses may be included in this new program.
Consultation: CAE, Subject Matter Experts (SMEs), External Resources

a) This full-time program will essentially be offered in a face-to-face, web-enhanced format in response to the number of international students anticipated to enroll. Offering some courses either blended or online will be entertained but only to the degree that it would not negatively impact the visa status of any international students.

b) Two existing courses have been incorporated into this program including RSCH-6002 "Qualitative Research Methods" and RSCH-6003 "Quantitative Research Methods". These courses are derived from the new "Research & Evaluation" graduate certificate program and are deemed highly relevant to this program's intent. This will also provide a pathway for students to and from this program and the "Research & Evaluation" program.

3.7 Research and Innovation

a) Describe how research and innovation will be included in the program (Policy 2-B-02).
Consultation: Centre for Research and Innovation, Subject Matter Experts (SMEs)

From Dan Douglas on January 22, 2020:

It would appear that development of research skills is incorporated directly through two courses – Qualitative Research and Quantitative Research. Additionally, Nutrient Analysis and Food Labelling provides the applied research activity of analyzing foods to determine nutritional composition. This course requires the use of food lab equipment and provides students the opportunity to develop lab processes and procedures and well as use proper use of research equipment.

Not sure if this is being considered, but if one of the course projects is 'development of an innovative food product', that would be a good fit to the research agenda too.

Note: Dan was correct – students will be asked to develop an innovative food product that can then be tested.

3.8 Innovation Village

a) Describe the Signature Innovative Learning Experience incorporated in this program

b) Describe any planned use of the physical space in Innovation Village

a) The SILEX for Research and Development in Food Innovation will be Live Client Interaction. Teams of students will work with industry partners from the Agri-business and food-processing sector on new product development from conception to market.

b) Students may access Innovation Village for client meetings, collaboration and project planning. There is also opportunity for collaborative work with marketing students.

4.0 Fit of Program

4.1 Gap Analysis

a) How is the program similar to or different from existing programs at the College and what impact will this program have on existing programs at the College? For example, does the proposed program provide additional breadth to our program offerings, or does it add specific disciplinary depth?

b) Are there similar programs being offered at colleges, universities or private institutions provincially, nationally and/or internationally? If yes, provide profile of key competitors including location and a brief description and how they differentiate themselves.

c) How else is the industry need being met if not provided in the options listed in c) above (e.g. regulatory body or in-service training)?

d) What makes this program unique from the similar existing programs identified in a), b), and c) above (e.g., innovative delivery methods, unique focus on teaching and learning or a specific student population, niche programming, research strengths)?

Consultation: CAE, Institutional Research, Subject Matter Experts (SMEs), External Resources

a) This program is complementary to other culinary and nutrition programs that exist at Fanshawe in that it provides an additional pathway from the culinary and nutrition diploma programs into a niche field. This program builds on the food and nutrition knowledge of those graduates, taking them further towards product innovation, testing and marketing. This program adds to the breadth of programs presently offered at Fanshawe while adding specific disciplinary depth to the culinary/nutrition fields.

b) The Culinary Innovation and Food Technology offered at Niagara College is an advanced diploma that combines food science with culinary skills. The program offers similar classes and content to the RDFI program, however, as an advanced diploma, the nutrition and culinary skills are included, whereas the RDFI program requires students to have those nutrition and culinary skills prior to admission into the program.

c) Currently, the industry hires people with a background in either culinary or food science and the combined skills training is provided by the employer. This program combines both sets of skills in one program ensuring graduates are better prepared for work in this field. There are also companies available that provide specific product testing services such as NSF International which provides sensory evaluation (odour, appearance, flavor etc.), microbiological sampling & testing, chemical testing related to shelf life, and physical tests related to travel and transport durability.

d) This program is niche in the Ontario College system. Although there is some overlap with Niagara's program (see a) above), the RDFI program is offered at the graduate certificate level, engages students with community partners and potential employers, and combines the culinary and science skills into one program that also includes research and development.

4.2 Key Performance Indicators (KPIs)

Please complete this table with the three most recent years of published data* for similar programs at your college only (minimum one, maximum three). Similar programs may include programs at the same or different credential levels, and transfer opportunities. Please add additional rows as needed.

Program		Academic Year of Graduation	2014/15	2015/16	2016/17	2017/18
MTCU Title	MTCU Code					
Nutrition and Food Service Management	53204	Graduate Count	35	27	22	32
		Employment Rate	100.0%	100.0%	n/a	n/a
		Employment Rate in a Related Field	66.7%	50.0%	n/a	n/a

*KPIs are to be calculated in accordance with the methods prescribed by MTCU. KPIs are based on graduates of MTCU approved full-time postsecondary programs whose funding status is shown in the graduate record layout as MTCU operating grant, Co-op Diploma Apprenticeship or Second Career, and who were surveyed by telephone.
** Employment Rate = (number of survey respondents employed Full-time or part-time, related or unrelated) / (number of survey respondents in labour force)
*** Employment Rate in a Related Field = (number of survey respondents employed Full-time or part-time, related) / (number of survey respondents in labour force)

4.3 Pathways to and from Proposed Program and Programs

a) Drawing on the gap analysis, are any program pathways anticipated or under negotiation to and/or from this program (internal and external)? If yes, describe how the existing/proposed program supports student mobility.

b) Describe any special features of this pathway (e.g., laddering, bridging).

c) How does this program fit into the provincial and national credit transfer framework? (ONCAT) (i.e., course to course vs. program to program; college to university, college to college, university to college)?

Consultation: CAE (Pathways Coordinator)

a) There are currently 19 Culinary Management diploma programs and 5 Nutrition and Food Services Management diploma programs that are viewed as feeder programs for this proposed program. In addition, there is a logical connection between this program and the Agri-Business and Research and Evaluation graduate certificate programs offered at Fanshawe; this includes an overlap in a couple of courses creating a pathway for students. This would be especially attractive to international students. Fanshawe's Nutrition and Food Services Management program already has in place a pathway to Brescia University College (as indicated below) that will be explored for expansion to include the RDFI program. Further, Fanshawe presently maintains an articulation agreement with Western University and Brescia College that enables a pathway from the Nutrition and Food Services Management diploma program at Fanshawe to the Bachelor of Science (Food and Nutrition) Honours degree program at Western/Brescia. A new articulation agreement will be investigated with Western and Brescia both to and from this new program.

b) See above.

c) Gabriela Kongkham-Fernandez, Pathways Coordinator at Fanshawe confirmed the potential feeder programs to this program within Ontario. Additional pathways will be explored to and from this program connecting it with agri-business/agri-science and nutritional programs at universities both at home and abroad.

Pathways Into Proposed Program			
Program Name	**Credential**	**Institution**	**Pathway Features**
Culinary Management	OCD	19 Ontario Colleges	Facilitates student progression/ specialization
Nutrition and Food Services Management	OCD	5 Ontario Colleges	Facilitates student progression/ specialization
Honours Bachelor of Commerce (Culinary Management)	BCOMMS	George Brown College	Facilitates student progression/ specialization
Pathways From Proposed Program **Academic / Research Collaboration**			
Foods and Nutrition	BSc	Brescia University College	
BSc (Honours) in Agricultural Science	BSc	IT Tralee	
BSc (Honours) in Sustainable Agriculture/ Agri-food Production	BSc	Dundalk IT	

4.4 How will this program help support the College's mission?

This program aligns most with the College's Business and Management, Leadership and Entrepreneurship areas of *strength* and areas of *expansion* noted in the Strategic Mandate Agreement. It also aligns with the following priorities listed in the Integrated Master Academic Priorities Plan:

- Mature Learning Strategy
- Internationalization
- Research

5.0 Demand and Support for Program

5.1 Student Demand

a) Provide evidence to validate student demand and/or societal need. (e.g. Student surveys, enrolment summaries and growth trends for similar programs, system enrolments and projected growth, or demographic projections for relevant sub populations)

b) Indicate which student populations are most likely to be attracted to the program:

Persona Groups

☐ Direct

☒ Non-direct

☒ International

☐ Other (identify):

c) Include an assessment of whether this program will draw students away from existing College programs or complement existing programs.

Consultation: Registrar's Office, Recruitment, International Services, Institutional Research

a) The Culinary Innovation and Food Technology graduate certificate offered at Niagara College has enjoyed an average of 61.6 students applying to their program for the last 5 years. The actual enrollments to this program are quite a bit lower at 17, 23, 23, and 19 for the past 4 years respectively; these enrollments include international students. The lower number of enrollments may be due to a cap on total enrollments in consideration of lab space. Other than 2017, a few students each year from Fanshawe's catchment area applied to Niagara's program over the past 5 years.

As of September 25, 2019

Student Demand - MTCU 63111 Culinary Innovation and Food Technology

	DOMESTIC - APPLICATIONS					DOMESTIC - YEAR 1 ENROLMENT				INTERNATIONAL - YEAR 1 ENROLMENT			
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2015	2016	2017	2018
NIAGARA	65	71	51	59	62	10	20	15	11	7	3	8	8
	65	71	51	59	62	10	20	15	11	7	3	8	8

WHERE IS FANS CATCHMENT GOING?

	DOMESTIC - APPLICATIONS					DOMESTIC -YEAR 1 ENROLMENT			
	2015	2016	2017	2018	2019	2015	2016	2017	2018
NIAGARA	2	4	0	3	2	2	1	0	0
	2	4	0	3	2	2	1	0	0

Note: Application and Enrolment numbers are for the Fall Term only unless otherwise indicated.

It is also noteworthy that there are 19 potential feeder programs for this graduate certificate in the province via their culinary and nutrition diploma programs. George Brown has by far the highest application and enrollment rates than the rest, although Humber, Algonquin are also high. There is also a relatively high number of international students enrolling in these colleges; for example, there were 227, 251, and 104 international students enrolled in these diplomas at Centennial, George Brown and Niagara colleges, respectively.

As of September 25, 2019

Student Demand - MTCU 53107 Culinary Management

	DOMESTIC - APPLICATIONS					DOMESTIC - YEAR 1 ENROLMENT				INTERNATIONAL - YEAR 1 ENROLMENT			
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2015	2016	2017	2018
ALGONQUIN	275	265	187	237	211	97	73	71	70	16	17	51	54
CANADORE	64	60	55	67	57	19	14	26	20	9	9	1	20
CENTENNIAL	163	162	178	190	224	14	26	26	34	18	26	60	227
COLLÈGE BORÉAL	0	0	5	2	0	0	0	3	0	0	0	0	0
CONESTOGA	124	93	75	78	91	28	19	16	16	8	15	21	48
CONFEDERATION	83	82	71	80	64	32	31	26	25	0	5	8	11
DURHAM	172	128	160	123	141	51	37	49	35	0	3	4	11
FANSHAWE	84	61	61	40	27	37	13	17	8	0	0	0	0
FLEMING	88	71	80	69	64	23	15	12	7	0	0	6	15
GEORGE BROWN	1320	1122	943	936	934	432	368	316	303	133	202	236	251
GEORGIAN	145	126	124	124	99	52	41	50	40	6	7	14	24
HUMBER	436	374	335	387	335	107	67	69	63	9	20	29	34
LA CITÉ COLLÉGIALE	42	32	31	23	26	19	12	14	5	1	0	0	1
LAMBTON	56	46	57	51	68	14	16	16	21	1	1	0	1
LOYALIST	78	60	56	53	39	14	12	0	0	0	2	0	0
NIAGARA	238	242	230	194	184	72	85	74	64	48	10	78	104
SAULT	23	26	27	21	18	5	9	9	7	4	0	1	4
ST. CLAIR	154	171	161	117	122	55	54	63	43	6	11	17	31
ST. LAWRENCE	180	172	125	126	114	42	51	28	25	4	5	13	18
	3725	3293	2961	2918	2818	1113	943	885	786	263	333	539	854

Wendy Curtis, Executive Director of the International Office has suggested that there will be significant interest in this program from international students and that this interest will grow as this program is promoted.

Student survey: First year students in the Culinary Management program were surveyed (Appendix I) during the last two weeks of November 2019; sixty-two students responded to the following questions:

- Would you be interested in taking this program?
- Would you be inclined to recommend this to a friend?

Of the sixty-two students, 29 indicated they would be interested in taking this program, while 33 said they would not. There could be a number of reasons for those who said they would not, including that this new program, which is niche, is not what they see in their future careers. Of the sixty-two that answered the second question, 46 said they would recommend this program to a friend, whereas 16 said they would not. Given that 29 students said they would be interested in taking this program and 46 said they would recommend this program to a friend, it can be established that in the Culinary Management program alone, there is a fair amount of interest in this new developing program.

5.2 Labour Market Demand

a) Provide evidence to validate employment demand from some or all of the following:

1. Trend data (employment trends for related employment)
2. Feedback from and support of a related Program Advisory Committee
3. Feedback from external stakeholders (Attach minutes from external stakeholder panel as appendix)
4. Other data sources (e.g., local, provincial, national and/or international economic development corporations, industry/professional associations)
5. Letters of employer support (attached as appendix)

1. The closest NOC code to this type of career is 9465 “Testers and Graders, Food and Beverage Processing”. According to the Program Development Data Report produced by Institutional Research, Fanshawe College, employment in this occupation is forecasted to increase by 5.3% for the period 2019-2026. It had previously increased by 0.5% from 2017-2019. Elgin-Middlesex-Oxford (EMO) has a comparative advantage with 74% more testers and graders, food and beverage processing than other regions in the country (for 2019). The location quotient in the report of 1.74 indicates that EMO has a higher share of this occupation than the province and country. Although this is a small occupation, when digging deeper, this very high location quotient is expected to rise by 12.6% over the next 7 years. All of the new jobs can be attributed to the regional competitiveness of this area and are related to the information provided below from the London Economic Development Corporation (LEDC).

A job search initiated on September 21, 2019 for the following titles: Food Technologist and Food Product Developer returned the following results:

- Food Technologist – Nestle London
- Research and Development Technologist – Dr. Oetker London
- Research and Development Technologist / Quality Assurance – Skotidakis Greek Yogurt St. Eugene
- Packaging Technologist – Maple Leaf Foods London

A job search on November 16, 2019 found the following for: Food Technologist, Research and Development Specialist and Food Marketing Coordinators:

- QA Technician – Super Pufft Foods Ltd., St. Mary’s, Ontario
- Quality Control Specialist – Tillsonburg Custom Foods, Tillsonburg, Ontario
- Development Technician –Apple One, Burlington, Ontario
- Food Processing Quality Control – Mad Mexican Food Products, Scarborough, Ontario
- R&D / QA Technologist - Skotidakis, St. Eugene, Ontario
- Project Coordinator – Mallot Creek, Elora, Ontario

2. & .3 This is addressed in 5.3 below.

4. The London Economic Development Corporation (LEDC) has identified London as “an ideal test market for companies developing new (food) products prior to nationwide launch.” (ledc.com/food-processing) Top multinational companies/employers in London area include Nestle Canada, Cargill, ABIvBEV, Pepsico, Dr. Oetker, the Original Cakerie, McCormick, and Natra. The LEDC is actively engaging in a campaign to bring more Argi-Food manufacturing businesses to London Ontario.

In an interview on November 27, 2019, Jack Adams of the LEDC stated that they are expecting 2-3 new food-processing businesses to join the sector in our region for the next 10-15 years. Maple Leaf Foods will be opening a new plant on Veterans Memorial Parkway near Dr. Oetker. He also stated that new growth is expected to continue and London and Canada as a whole is investing heavily in agri-business and food processing.

Collin Yates, Chair, Centre for Research and Innovation, stated in an email on January 22, 2020, “After the past several months travelling around the region and talking to many companies it is clear that the growing food start-up community is seeing the important role we can play in their company’s growth. CRI is positioning Fanshawe as the go-to R&D arm for the region in Food Innovation. Stay tuned as we have some more announcements on the Food Innovation front coming your way very soon!” (Please

see the entire email attached as appendix J.) This program development may be the beginning of a very exciting and much larger development for Fanshawe College.

5. Please see questionnaires from members of the advisory panel indicating their support attached as appendix L.

5.3 Partnerships Supporting New Program

a) List any new internal or external partnerships that may develop if this program were to be delivered. Include letters of support in an appendix.

b) What, if any, alliances are possible to reduce costs, increase speed to market and increase market coverage?

c) How are the external stakeholders willing to support the proposed program? (check as many as apply)

☒ Continuing on Advisory Committee ☒ Teach a course

☒ Provide placement or experiential learning (e.g. co-op, field placement, mentorship)

☒ Present as a guest speaker ☒ Provide a tour

☒ Research (project, partnership etc.) ☒ Donation, Scholarship, Award, equipment

☒ Other: Advise on detailed curriculum

Consultation: Internal and External Stakeholders

a) Organizations so far that have expressed interest in partnering and collaborating with Fanshawe in the development and future of this program include the London Economic Development Corporation, McCormick Canada, and LiveFit Fitness, Nestle Canada, Food Processing Skills Canada, Natra Chocolate America, the Original Cakerie, Dr. Oetker, Food Processing Skills Canada, Black Sombrero, Booch Organic Kombucha. Others are being explored.

b) The advisory meeting for this program development took place February 10, 2020. The 10 panel members expressed overwhelming support for this program. They wholly endorsed the proposed vocational learning outcomes and provided solid feedback regarding the course structure. The panel recommended a co-op for this program development; Career Services at Fanshawe has been contacted in this regard. The enthusiasm for this program development was so strong that invitations were offered for the development team to tour plants, and a very generous offer to view significant space in consideration of a pilot kitchen was offered. These offers will be explored. Please see the minutes from this meeting attached as Appendix M.

Prior to the advisory meeting, a survey was sent to potential panel members requesting feedback on the proposed vocational learning outcomes, equipment suggestions and whether there is a demand for this program. Comments from the two who responded to the survey are captured below:

Demand for Program

"*I have been saying there is a need for this for the last decade…I would say the absolute biggest reason is that the skill set you are describing is currently filled by 2 positions, one a culinary position and the other a food science position. Someone armed with both skill sets would be an incredibly valuable asset."*

"We believe with the demand to keep up with industry standard is at a paramount.

Vocational Learning Outcomes

"The list is very comprehensive and does match the skill set of what is required."

"The vocational learning outcomes provided essentially align with our production process. This would be beneficial to have graduates well versed in these areas as it is becoming more prevalent in food production facilities."

Re: Equipment

"Bostwick, colorimeter and pantone validation, water activity meter, specific gravity SG measuring, data loggers, brix testing"

"There are a vast amount of equipment and tools available in the industry to be listed. I would say the core basic and advanced culinary training is essential first. By having that knowledge, it can translate into automation equipment that provide the same results in a more effective manner. Pending on the production facility, equipment will always vary."

6.0 Feasibility of Program

6.1 Multi-Year Enrolment Projections (headcount)

	2018/19			2019/20			2020/21			Ongoing		
	F	**W**	**S**	**F**	**W**	**S**	**F**	**W**	**S**	**F**	**W**	**S**
Year One of Program	40			40			40			40		
Number of Graduates	36			36			36			36		
Total Enrollment	40			40			40			40		

*The anticipated 40 students each year includes 20 domestic and 20 international.

6.2 Human Resources

a) Include staffing plan for program, up to and including full implementation.

1. Estimate the staffing requirements that are above the existing HR complement.
2. Would there be any changes to current staffing arrangements in order to implement this new program?
3. Would there be any additional training needs?

Consultation: Human Resources, OD&L, other Schools

b) Student Services

1. What other Learner / Student Success Services are required?

Consultation: Student Success Advisor

On January 23, 2020, Liisa Pelot who is the current Academic Advisor shared the following:

"I believe that my current student load is 2800 students, which means that in terms of numbers, I am well beyond what is actually feasible to support (industry standard case loads are more in the range of 300-400 students).

Notwithstanding that, the regular services I provide include advocacy, progression planning, referrals, advice, complex problem-solving, liaising with other internal service providers to resolve unique problems (including ombuds, counselors, etc).

I would have some more in-depth questions about who the target is: splitting students from originating programs that are so different, and taking in half domestic and half international is a situation I could see creating a lot of problems, at least for initial intakes. There is a complex set of issues that arise with this kind of complexity.

In addition, Paniz Saremirad, International Student Life & Immigration Advisor shared the following:

"There are almost over 7000 International students at Fanshawe College and 5 Student Life coordinators that 3 of them are also licensed to do Immigration advising as it relates to Temporary Status of International students. At the moment, I'm only 2 days at the downtown campus and hopefully in the future we will have more resources in terms of staffing or efficiency in allocating tasks.

As per the services we (Student life coordinators-SLC) provide, there would be anything that relates to International Student Life in general (could be referrals to/ liaise with other departments or providing guidance at the International Office), any Immigration related matters as it pertains to International students (Visa, Study Permit, co-op work permit, Post graduation work permit).

Any further questions please don't hesitate."

6.3 Ministry Funding

Consultation: CAE

→ See ***Appendix F: Program Delivery Information (PDI) Form to Calculate Program Funding Parameters.***

6.4 Proposed Program Fees

Consultation: CAE, Financial Planning

Approved Postsecondary (APS) Program MCU Table

- **Wt** - Program Weight for funding purposes: 1.1
- **FU -** Program Funding Units for funding purposes: 0.9
- Proposed annual tuition fee: $ 3113.48
- Fees: Regular ☒ High Demand ☐
- What tuition and ancillary fees are being charged by other colleges for similar programs?

  There are no similar programs at other colleges. The tuition funding units and weights above are based on those for the Fanshawe's Agri-Business Management program. For comparison, the annual fee for first year at Niagara College for their Culinary Innovation and Food Technology program is $2714.98 plus ancillary fees.

  A program-specific fee is under consideration to ensure all students are prepared with a lab coat, PPE (safety glasses, gloves etc), and a pre-loaded IPad. There may also be a material fee for food costs in the lab. FSU will be approached in this regard in fall 2020 in preparation for 2021.

- Proposed ancillary fees: $___$635.66 (2019/20)_____ (to be discussed with Office of the Registrar and negotiated with FSU)

6.5 Required Program Resources

a) **Space requirements**

See ***Appendix G: Detailed Course Delivery***

1. Can this program use existing space?
   i. If Yes,
      a. Will it differ by term or year?
      b. Will it require renovations to existing space? If yes, describe.
      c. Will it require designated space? If yes, describe.
      d. Will additional office space be required for faculty and/or support?

   ii. If No,
      a. Specify the size, type and attributes of classrooms and/or space.
      b. Will it require designated space? If yes, describe.
      c. Can this new space be made available to other programs/Schools?
      d. If there is a comparable room that serves as a model, indicate the room number_____.
      e. Will additional office space be required for faculty and/or support?

Consultation: Facilities Management, Timetabling/Scheduling

Lisa Dennis,

"For the labs, in looking at LDB319, there were 42 hours in it for 19F (all but one 6-hr lab is forced in this room) and 25 hours now for 20W (all forced hours into this room). I am still struggling with being able to get 20 more hours (plus up to 8 clean up hours) into this space for Fall term, and 16 hours (plus up to 6 clean up) into Winter. Winter might be a bit more management but Fall would be over 60 hours in the room. James/Tracy, unless you have hours that can come out of this room and into another kitchen?? However, that being said, they were 60 hours already in LDB309 and 43 hours in LDB325. I think this could all be a challenge."

"Current state, classrooms are so full. They are running at 91%, so adding more hours would be a further challenge. However, there is always talk about moving programming out of there to free up some space, so this would then become more reasonable, if it were to happen."

b) **Computing requirements**

1. Identify any new computers or related hardware devices needed:

   ☐ Desktop Computer ☐ Laptop ☐ Notebook ☐ Tablet

   ☐ PC based ☐ MAC ☐ IOS ☐ Android ☐ Other:

   Quantity:

2. Identify connectivity requirements:

   ☒ Permanent Hardwire ☐ Wireless ☐ Power Outlet – e.g., Laptops

   ☐ Other:

3. Identify data storage requirements (excluding FOL):

   ☐ Hard Drive Only ☐ Departmental Server ☐ ITS Network Server

   ☐ Third-Party Cloud Storage ☐ Other:

4. Identify new or modified software requirements including version, licensing and cost:

   At this time, there are no known computing needs; however, a closer review of the curriculum and space determinations in stage-gate 3 will identify if there are any new software needs beyond those that already exist.

5. Identify cloud-based (online) services or products required:

   n/a

6. Can the proposed hardware and software run on the College's networks? If no, describe what is required. n/a
7. Estimate the computing requirements required for startup of all levels (e.g., lab sizes required, specific hardware requirements). n/a

8. Estimate the computing requirements for ongoing delivery of the program (up to the 5th year) (e.g., estimated lab sizes required, specific hardware requirements, equipment refresh cycle) n/a
9. What are the implications for existing IT architecture given program size, delivery format and computing requirements? none
10. Does existing IT infrastructure allow this program to be offered as proposed? If no, what is required?
11. Identify any new or modified classroom teaching technology required to offer the program (e.g., projectors, audience response systems [clickers], touch-enabled displays, other):
12. Are there specific IT staff support needs for the program? If yes, describe.

Consultation: Information Technology Services

At this time, there are no known computing needs; however, a closer review of the curriculum and space determinations in stage-gate 3 will identify if there are any new software needs beyond those that already exist.

ITS Employee(s) Consulted: Brody Lavoie, Senior Manager, Academic Technical Support Services ITS Notes: as above

c) **Marketing Resources** - Discuss marketing strategies with R & BM to reaching the appropriate student populations for this program.

Consultation: Reputation and Brand Management (R & BM)

Marketing Strategies	✓
Admission Process	
A. Alternate Offers	
Events & Recruitment Presentations	
B. Open House	
C. Recruitment Presentations	
D. Grad Fair	
E. Industry Presentations	
F. Internal Student Presentations	
G. College Events (e.g. Trauma & Treatment)	
Print	
H. School Sales Brochure	
I. Flyer	
Direct Mail	
J. Guidance Counselor Mailing	
K. Influencer/Practitioner Mailing	
Digital	
L. Google Adwords	

M. Google Display & Facebook Sponsored Posts	
Communications & Signage	
N. Website	
O. Social Share	
P. Flyer	
Q. Zap Sign	
R. Program Crest	

R & BM Employee(s) Consulted: Janine Shier, Marketing Officer advised of the following:

I've reviewed the checklist that you sent and from a marketing standpoint, I find that most of it is still applicable. Based on the list provided, here's a breakdown of what we could do to launch this program:

Print

- School Sales Brochure – we don't do school specific brochures, but it would be Included in the Viewbook (only once the program is completely approved and on the website – if that meets print timelines)
- Flyer – I can setup the program on Fanshawe Marketing Hub (www.fanshawemarketing.ca) and provide staff/faculty access to create flyers, promo cards, posters and digital signage for the program.

Direct Mail

- Guidance Counsellor Mailing – I believe this has changed to an email format and we try to make a special note of new programs when we send these out, typically 1-2 times per year.
- I don't recommend any other type of direct mail efforts – it's not cost effective as it's extremely expensive and results are not measurable

Digital Marketing

- Google Search & Display advertising campaign
- Social Media advertising campaign – on various platforms including Facebook, Twitter and Instagram
- RBM runs open program and featured program campaigns with all of the above and this new program will benefit from the campaign
- Email marketing – this graduate program can be included in re-recruitment emails to upcoming/recent Fanshawe graduates

Communications & Signage

- Website updates to include complete and detailed information on all tabs and to be search engine optimized (SEO) – program coordinator to work with marketing officer for this to be completed
- Social share – unpaid, organic promotion tactics to be consulted with Dayan Boyce at time of launch
- "Flyer" was included twice under print – it can probably be removed from here and left under Print

- Zap display sign for the program for open houses and other events

R&BM does not receive budget specifically for new program launch marketing so we typically recommend that you request at least $12-15K for marketing the launch of the new program, as well as recommend that adequate budget be requested for subsequent years to maintain the momentum of the launch efforts. Once the program is approved and budget has been determined, let us know and we can meet to discuss a specific launch strategy.

d) **Learning Resources -** Include collections and/or online resources required.

Consultation: Library

Megan Anderson, Research and Curriculum Librarian provided the following information related to Library resources:

Library and Media Services currently has a significant amount of resources to support the Research & Development in Food Innovation program. A modest amount of funds are requested to add four current eBook titles to the collection. Only resources available in electronic format were considered in order to maximize accessibility of resources for students.

It is strongly recommended that professors in the Research and Development in Food Innovation work collaboratively with their Librarian (currently Megan Anderson) in order to develop customized course guides to facilitate easy, accessible, direct access to relevant resources. An example of a course guide created for a history course is available here: https://fanshawec.libguides.com/TRAV1034.

Listed below are examples of items already in the library collection, as well as a list of recommended additions to the collection. The total request for library funds is as follows:

- E-Books: $1600
- Streaming Media: $0
- eJournals: $0
- Databases: $0

Total ask: $1600 in order to add 4 updated eBooks to the collection.

Resources Currently in the Collection:

- **eBooks:**
    - How Canadians Communicate VI : Food Promotion, Consumption, and Controversy (2016)
    - Innovations in Traditional Foods (2019)
    - Food and Nutrition : What Everyone Needs to Know (2018)
    - Conversations in Food Studies (2016)
    - Food Safety and Consumption : Assessment, Practices and Current Issues (2017)
    - Food Issues, Policies, and Safety Considerations (2016)
    - The Oxford Handbook of Food, Politics, and Society (2015)

- Food Markets : Consumer Perceptions, Government Regulations and Health Impacts (2016)

- **Databases**:
  - Applied Science & Technology
  - ScienceDirect
  - ABI/INFORM Global
  - Business Source Complete
  - Canadian Business & Current Affairs (CBCA)
  - Culinary Arts Collection
  - Hospitality and Tourism Complete
  - Academic Search Ultimate
- **eJournals**:
  - Food Research International
  - Food and Nutrition Sciences
  - Food, Culture and Society
  - Journal of Food & Nutrition Research
  - British Food Journal
  - Advances in Nutrition: An International Review Journal
  - Trends In Food Science & Technology
- **Streaming Media**:
  - The Future of Food
  - What Can Whole Foods Learn from Lego?

Suggested Resource Additions:

- **eBooks**:
  - Research Methodology In Food Sciences: Integrated Theory And Practice (2018)
    - ISBN: 9781351627467
  - Food Science And Nutrition: Breakthroughs In Research And Practice (2018)
    - ISBN: 9781522552086
  - Handbook Of Research On Food Science And Technology: Volume 1: Food (2018)
    - ISBN: 9780429947179
  - Handbook Of Research On Food Science And Technology: Volume 2: Food (2018)

- ISBN: 9780429947117

- **Streaming Media:**
  - No suggested additions
- **eJournals:**
  - Journal of Food Research
    - Canadian and Open Access
- **Databases:**
  - No suggested additions

6.6 Cost of Program → See ***Appendix H: Multi-Year Budget Projections with Net Present Value (NPV).***

a) **Capital requirements**

1. Specify the capital requirements required for startup. Consider:
   i. New space/building
   ii. Facility renovations, additions and/or improvements
   iii. Classroom and/or laboratory equipment
   iv. Computers, software and IT infrastructure
   v. Program related equipment (e.g., machinery, tooling)
   vi. Non-academic furniture & office equipment
   vii. Academic furnishings
   viii. Marketing materials
   ix. Staffing (FT, NFT, Technicians, Support)
2. Estimate the capital requirements for ongoing delivery of the program (up to the 5th year).
3. Specify the amount of capital investment required to implement this program that is beyond your existing capital allotment. If this exceeds $1 Million, also the source of these funds.
4. Specify the type of equipment and infrastructure enhancements needed to operationalize delivery of the program (electrical upgrade, water, eye wash station, fume hood, etc.).
5. Identify special lab amenities/attributes (functional requirements noted in 6.5 a) that impact 6.5 b)).
6. Are there any prerequisites or special considerations that will affect the timing of this proposal?

Consultation: Faculty, Chair, Program/Ops Manager, HS&S, Facilities Management

Equipment costs for this program are fairly significant, have been listed below and are included in the budget preparation. For more details related to these costs, please see Appendix K, created by James Smith. Collin Yates, Chair, Centre for Research and Innovation provided the following possible list of needed equipment and estimated of costs:

1. Lab grade fridge and freezer ($8,000)
2. Canning & Jarring Small Production Line ($5,000)
3. Shelf Life Testing Equipment ($60,000)
4. Brix Measuring Equipment for sugar ($2,000)
5. Viscosity Measurements ($10,000)
6. Craft Beer Making Equipment ($15,000)
7. Small Scale Wine-Making Equipment ($10,000)
8. PH Meter ($1500)
9. Calorimeter ($10,000)
10. Glassware (test tubes, beakers) ($2,000)
11. Micro Pipettes ($60,000)

Approximate total: $183,500

b) **Multi-year Budget**

1. Outline any budgetary assumptions.
2. Specify the budget requirements required for ongoing delivery of the program. Consider:
    i. New space/building
    ii. Facility renovations, additions and/or improvements
    iii. Classroom and/or laboratory equipment
    iv. Computers, software and IT infrastructure
    v. Program related equipment (e.g., machinery, tooling)
    vi. Non-academic furniture & office equipment
    vii. Academic furnishings
    viii. Marketing materials
    ix. Staffing (FT, NFT, Technicians, Support)
3. What is the proposed Net Present Value (NPV)?

Consultation: Financial Planning

The RDFI program budget was established based on the following:

- Tuition grant based on funding units and weights comparator Agri-Business Management
- There is no current donation money (to be pursued)
- Lab space will be in LDB-319, which has been maintained for this program and will be its "home lab" although not dedicated
- Section sizes are set at 36 with a 20 maximum students each
- Tuition is based on a 50/50 split of domestic and international students
- Research funding to cover backfill cost for FFT working on research project in 1st 2 years

- $183,500 for equipment and renovations to the lab
- A program-specific fee is under consideration to ensure all students are prepared with a lab coat, PPE (safety glasses, gloves etc), and a pre-loaded IPad. There may also be a material fee for food costs in the lab. FSU will be approached in this regard in fall 2020 in preparation for 2021.

The Net Present Value for this development is $210,049. Please see Appendix H.

6.7 Alternative Sources of Funding

a) Are there alternative sources of funding for this program (*e.g.*, donations, repurposing, partnerships)?

Consultation: Advancement and Alumni Office, External Resources

1. Collin Yates, Chair, Centre for Research and Innovation, recently acquired a research grant from which to develop a research program from within the new Innovation Village that includes collaborating with community partners in food product testing opportunities. As part of this grant, a new full-time professor/researcher is being hired, whose time will be split between research and teaching within this new program.

2. Scott Mousseau, Manager of Advancement Services provided the following:

"The Advancement & Alumni department builds philanthropic relationships with alumni, donors, community partners and Foundations to attract gifts that will support student success across Fanshawe College. These gifts typically are used for the purposes of supporting scholarships, bursaries, awards, programming needs, and approved capital projects. In working with the Advancement & Alumni office, we will assist with the identification and cultivation of the appropriate philanthropic relationships that may support the specific initiatives and work towards finding new relationships to assist with the needs of the programs." Judith Smith will be approached by the development team as this development moves into stage-gate 3.

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Basic Information

Program Title: Research and Development in Food Innovation
MTCU Code: n/a
Proposed Credential: Please select one (1). ☐ Local Board Approved Certificate ☐ Ontario College Certificate ☐ Ontario College Diploma ☐ Ontario College Advanced Diploma ☒ Ontario College Graduate Certificate
Funding: This proposal will be sent to the MCU for Approval for Funding. ☒ Yes ☐ No Indicate whether the funding would be: ☒ Full-time ☐ Part-time

Program Description

Program purpose - include occupational areas where it is anticipated graduates will find employment: The Research and Development in Food Innovation (RDFI) program is a two-semester graduate certificate, offered in a web-enhanced delivery format with a planned launch of fall 2021. This program combines instruction in food science, therapeutic nutrition, sensory evaluation, food research and development, and culinary creativity with business courses in quality assurance and industry engagement.
Admissions Requirements for the proposed program: One of: • Ontario College Diploma, Ontario College Advanced Diploma, Degree or equivalent in culinary, nutrition, food science or similar discipline; - OR – • Acceptable combination of related work experience and post-secondary education as judged by the College*

Occupational Areas:

Students will apply their unique ability to combine culinary creativity with food science that will lead to careers as product developers, new product marketing coordinators, food research and development specialists, food technologists and/or research product managers in the growing agribusiness, food manufacturing and processing industry.

There are currently 19 Culinary Management diploma programs and 5 Nutrition and Food Services Management diploma programs that are viewed as feeder programs for this proposed program. In addition, there is a logical connection between this program and the Agri-Business and Research and Evaluation graduate certificate programs offered at Fanshawe; this includes an overlap in a couple of courses creating a pathway for students. This would be especially attractive to international students. George Brown College offers an Honours Bachelor of Commerce with a specialization in culinary management, which presents a good fit for pathway development. Further, Fanshawe presently maintains an articulation agreement with Western University and Brescia College that enables a pathway from the Nutrition and Food Services Management diploma program at Fanshawe to the Bachelor of Science (Food and Nutrition) Honours degree program at Western/Brescia. A new articulation agreement will be investigated with Western and Brescia both to and from this new program. Additional pathways will be explored to and from this program connecting it with agri-business/agri-science and nutritional programs at universities both at home and abroad.

Program VLOs

Provincial Vocational Program Outcomes ☐ Provincial Program Standard, *or* ☒ Provincial Program Description *MTCU code*: 63111	**Proposed Program Vocational Learning Outcomes**	**Please explain how the proposed VLO differs from the Provincial VLOs**	**Course Code /Course Title**
1. Determine testing, processing and food stability and safety using proper food science principles	Assess food stability and food safety utilizing the principles of food science to ensure product quality.	Enhanced skill level	CHEM-XXX1 - Food Chemistry BIOL-XXX1 - Food Microbiology 1 NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical) CULN-XXX1 - Test Kitchen CULN-XXX2 - Sensory Evaluation BIOL-XXX2 - Food Microbiology 2 CAPS-XXX1 - Industry Engagement - Capstone
2. Maintain a healthy, safe work environment and contaminate free food service	Select industry best practices related to quality assurance, food safety, and legislation in the agri-business and food-processing sector.	Enhanced skill and regulations	CHEM-XXX1 - Food Chemistry BIOL-XXX1 - Food Microbiology 1 SFTY-XXX1 - Food Safety, Traceability or Quality Assurance/Legislation NUTR-XXX3 - Nutrient Analysis and Food Labelling CAPS-XXX1 - Industry Engagement - Capstone
3. Determine preparation techniques and ingredient selection for food processing and innovative product development	Determine ingredient selection and preparation techniques for food product development.		NUTR-XXX1 - Functional Nutrition NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical) CULN-XXX1 - Test Kitchen CULN-XXX2 - Sensory Evaluation CAPS-XXX1 - Industry Engagement – Capstone
4. Plan, prepare and present meals and baking products using fundamental culinary techniques	n/a		

5. Process engineer for a wide range of food groups including fruits, vegetables, meat, fish dairy and poultry	n/a		
6. Prepare packaging and storing techniques for food products including extending shelf life	Evaluate packing and storing techniques and procedures used in the production of agri-business and food-processing products to ensure food quality and safety.	Enhanced skill	SFTY-XXX1 - Food Safety, Traceability or Quality Assurance/Legislation CULN-XXX3 - Culinary Innovation – Marketing CULN-XXX3 - Culinary Innovation - Marketing
7. Apply fundamental nutritional principles to all aspects of food production	Apply fundamental nutritional principles to all aspects of food production to ensure compliance with Canadian Food Industry Standards		NUTR-XXX1 - Functional Nutrition NUTR-XXX1 - Functional Nutrition CAPS-XXX1 - Industry Engagement - Capstone
8. Implement quality control procedures in manufacturing and processing of food.	n/a	Covered in #2	
9. Analyze and develop innovative food products using food chemistry and food microbiology principles	Develop food products using food chemistry, food microbiology and human physiology principles to broaden food product options in the market.		CHEM-XXX1 - Food Chemistry BIOL-XXX1 - Food Microbiology 1 NUTR-XXX1 - Functional Nutrition NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical) CULN-XXX1 - Test Kitchen CULN-XXX2 - Sensory Evaluation BIOL-XXX2 - Food Microbiology 2 CAPS-XXX1 - Industry Engagement - Capstone
10. Determine and assess budget and cost control methods in food processing	Assess budget and cost control methods in food processing to ensure financial feasibility.		CULN-XXX3 - Culinary Innovation – Marketing BUSI-XXX1 - Business Production Analysis & Forecasting CAPS-XXX1 - Industry Engagement - Capstone
	Research and interpret information related to food innovation in agri-business and food processing to ensure economic viability.		RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research BUSI-XXX1 - Business Production Analysis & Forecasting

			CAPS-XXX1 - Industry Engagement - Capstone
	Compile business/marketing related information to ensure marketability.		RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research CULN-XXX3 - Culinary Innovation - Marketing BUSI-XXX1 - Business Production Analysis & Forecasting CAPS-XXX1 - Industry Engagement - Capstone
	Present new product research persuasively and accurately in oral, written and graphic formats to support sales and marketing.		RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research CULN-XXX3 - Culinary Innovation - Marketing CAPS-XXX1 - Industry Engagement - Capstone

Add additional rows as required to complete the mapping exercise

Program EESs

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Code
Communication	• Reading • Writing • Speaking • Listening • Presenting • Visual Literacy	• communicate clearly, concisely, and correctly in the written, spoken, and visual form that fulfils the purpose and meets the needs of the audience	CULN-XXX3 - Culinary Innovation – Marketing CAPS-XXX1 - Industry Engagement - Capstone
		• respond to written, spoken, or visual messages in a manner that ensures effective communication	RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research CULN-XXX2 - Sensory Evaluation
Numeracy	• Understanding and applying mathematical concepts and reasoning • Analysing and using numerical data • Conceptualizing	• execute mathematical operations accurately	NUTR-XXX1 - Functional Nutrition RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research BUSI-XXX1 - Business Production Analysis & Forecasting
Critical Thinking & Problem Solving	• Analysing • Synthesizing • Evaluating • Decision-making • Creative and innovative thinking	• apply a systematic approach to solve problems	CULN-XXX3 - Culinary Innovation – Marketing BUSI-XXX1 - Business Production Analysis & Forecasting
		• use a variety of thinking skills to anticipate and solve problems	CULN-XXX1 - Test Kitchen CULN-XXX2 - Sensory Evaluation CAPS-XXX1 - Industry Engagement - Capstone
Information Management	• Gathering and managing information • Selecting and using appropriate tools and technology for a task or a project • Computer literacy	• locate, select, organize, and document information using appropriate technology and information systems	RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research SFTY-XXX1 - Food Safety, Traceability or Quality Assurance/Legislation CAPS-XXX1 - Industry Engagement - Capstone

Skill Categories	Defining Skills Skill areas to be demonstrated by the graduates	Essential Employability Skills Outcomes The graduate has reliably demonstrated the ability to:	Course Title / Course Code
	• Internet skills	• analyse, evaluate, and apply relevant information from a variety of sources	RSCH-6002 - Qualitative Research & Development RSCH-6003 - Quantitative Research CAPS-XXX1 - Industry Engagement - Capstone
Inter-personal	• Team work • Relationship management • Conflict resolution • Leadership • Networking	• show respect for the diverse opinions, values, belief systems, and contributions of others	NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical) CULN-XXX2 - Sensory Evaluation CAPS-XXX1 - Industry Engagement - Capstone
		• interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals	CHEM-XXX1 - Food Chemistry BIOL-XXX1 - Food Microbiology 1 CAPS-XXX1 - Industry Engagement - Capstone
Personal	• Managing self • Managing change and being flexible and adaptable • Engaging in reflective practice • Demonstrating personal responsibility	• manage the use of time and other resources to complete projects	NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical) CULN-XXX1 - Test Kitchen CAPS-XXX1 - Industry Engagement - Capstone
		• take responsibility for one's own actions, decisions, and consequences	SFTY-XXX1 - Food Safety, Traceability or Quality Assurance/Legislation CAPS-XXX1 - Industry Engagement - Capstone

Program Curriculum

Semester	Course Code	Number of Hours	Course Title:	Course Description	General Education Course *(indicate with an X)*
1	**CHEM-XXX1**	**45**	**Food Chemistry**	This course will introduce elements of inorganic, organic and biochemistry relevant to the development, quality control analysis and testing of food products. Students will perform laboratory exercises that include the qualitative and quantitative evaluation of food chemistry.	
1	**BIOL-XXX1**	**45**	**Food Microbiology**	Microorganisms have a both positive and negative impact on food quality. This course introduces the basic aspects of microbiology, taxonomy, morphology and physiology of microorganisms. Students will participate in basic laboratory techniques for the microbiology lab, including microscopy, swabbing, plating, enumeration, staining, selection of media and general aseptic technique.	
1	**NUTR-XXX1**	**30**	**Functional Nutrition**	In this course, students will study human physiology as it relates to diets and digestion. Dietary strategies, nutrition modification and current topics in nutrition, such as organics, food additives, fermented foods and gluten-free diets will be included in this course.	
1	**NUTR-XXX2**	**45**	**Functional Nutrition – Ingredients and Additives Practical**	In a series of food labs, students will examine how theory transforms into practice. Labs will focus on nutritional and functional food products. Students will examine an array of food additives, synthetic products used for nutritional benefit, product quality, sensory characteristics and antimicrobial activity.	
1	**CULN-XXX1**	**45**	**Test Kitchen**	Food processing technology plays a vital role in the sector. How various commodities are produced and manufactured is key in new product development. This course will focus on equipment	

				requirements, product knowledge, and processes involved in the development of food products.	
1	**RSCH-6002**	**45**	**Qualitative Research and Development**	In this course, students will examine qualitative research purposes, design, planning, data collection, evaluation and reporting. Qualitative research methods, which may include interview, panel focus group, observational, description, social network analysis, and other sociometrist methods. Students will apply analytical methods and software tools to research data.	
1	**RSCH-6003**	**45**	**Quantitative Research**	In this course, students will review basic principles of quantitative research design and statistical analysis methods. Students will apply multivariate methods using real-world evaluation and policy contents. Topics include measurement, reliability and validity of inferences, and use of software for statistical analysis.	
1	**SFTY-XXX1**	**45**	**Food Safety, Traceability, Quality Assurance/Legislation**	Agri-business and food processes are highly regulated, under provincial and federal legislation, to ensure safe, high quality products for consumers. This course will introduce food regulations regarding food safety, and good manufacturing practices, including HACCP.	
2	**NUTR-XXX3**	**30**	**Nutrient Analysis and Food Labelling**	In this course, students will have the opportunity to conduct a nutrient analysis of their food product using advanced laboratory equipment, such as the bomb calorimeter, spectrometer, tiltrotors, incubators, shakers and stomachers.	
2	**CULN-XXX2**	**45**	**Sensory Evaluation**	Sensory education is the establishment of a fundamental approach to taste. This course will provide students the opportunity to train their senses and palates which acquiring the foundational language of taste vocabulary. Students will participate in excursions that further acquaint them with their own sensory experiences and that reinforce the importance of sensory experience in everyday life.	
2	**BIOL-XXX2**	**45**	**Food Microbiology 2**	This course will focus on the encapsulation of techniques learned in previous food science courses. Each student will	

				complete a research project in food microbiology with a focus food micro flora, molecular biology or biotechnology. Topics include mechanisms of bacterial gene control, industrial application of microbiology, microbial fermentation, macromolecules and food structure, human nutrition, food processing operation, flavours and colours additives.	
2	**CULN-XXX3**	**45**	**Culinary Innovation - Marketing**	Students will examine best practices in innovative agri-business and food processing. From concept to launch, students will study the fundamentals of innovation management, knowledge mining, research, concept scoping, and testing, packing, costing and strategic marketing. Students will develop an innovative food project plan with an emphasis on the consumer and marketing aspects.	
2	**BUSI-XXX1**	**45**	**Business Production Analysis and Forecasting**	In this course, students will engage in forecasting, an estimate of future requirements based on historical data and other operational and market analysis factors that affect sales and production, to create directives for business product production.	
2	**CAPS-XXX1**	**90**	**Capstone – Industry Engagement**	Teams will work with industry partners from the Agri-business and food-processing sector on new product development from conception to market. Students will participate in the product development process, which includes formula development, quantity production, packaging and marketing.	

Add additional rows as required to complete the curriculum chart.

Certification/Accreditation

There is a legislative requirement that program graduates must be certified or licensed by a regulatory authority to practice or work in the occupation:

☐ Mandatory recognition of a regulatory authority exists and is being sought.
(Please refer to Section A below- *Mandatory Regulatory Requirements*)

There is a voluntary (i.e., not required by legislation) licensing or certification for entry to practice in the profession or trade:

☐ Voluntary recognition of a regulatory authority IS being sought.
(Please refer to Section B below- *Recognition by Voluntary Association*)

☒ Voluntary recognition is NOT being sought.
(There may be titling implications for programs that are not seeking recognition in an area where existing programs have secured recognition.)

Please explain why:

There is no recognition:

☐ None exist.

Section A: Mandatory Regulatory Requirements

Where licensing or certification is required by legislation for entry to practice in the profession or trade, the Ministry of Training, Colleges and Universities requires that colleges ensure that their programs will meet the requirements of the regulatory body in order to be approved for funding.

Name of regulatory authority:

Status (please select ALL that apply)

☐ Accreditation or approval by the regulatory authority / designated third party received.

Date of recognition:

☐ The college is working toward accreditation with the regulatory authority/ designated third party.

Describe current status of application:

Expected date of recognition:

☐ The regulatory authority does not accredit educational programs directly or through designated third party. Formal acknowledgement (e.g. in its published or legislated registration requirements) that the

program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Section B: Recognition by Voluntary Association

Alternatively, colleges may choose to have a program accredited or recognized by a voluntary membership organization or association. Graduate eligibility for association recognition or adherence to standards imposed by the body is a recommendation and not a requirement for program funding approval by the Ministry of Training, Colleges and Universities.

Name of voluntary association:

Status (please select ALL that apply)

☐ Recognition has been received.

Date of recognition

Type of recognition (e.g. accreditation, graduates eligible to write membership exams, etc.)

☐ The college is working toward recognition.

Describe current status of application:

Expected date of recognition:

☐ The association does not recognize educational programs directly or through designated third party. Formal recognition (e.g. in its published requirements) that the program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Please submit an acknowledgement and/or evidence from the regulatory authority or voluntary association regarding the status of the recognition.

Contact Information

Name:	**Name**:
Title:	**Title**:
Telephone:	**Telephone**:
E-mail:	**E-mail**:

APPENDIX E – Program Outcomes – Curriculum Map

PROGRAM MAPPING (Research & Development in Food Innovatio																
	LEVEL ONE									LEVEL TWO						
PROGRAM VOCATIONAL LEARNING OUTCOMES **I** - Introductory **B** - Building **C** - Culminating **The graduate has reliably demonstrated the ability to: (Source: MTCU Code)**	CHEM-XXX1 - Food Chemistry	BIOL-XXX1 - Food Microbiology 1	NUTR-XXX1 - Functional Nutrition	NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical)	CULN-XXX1 - Test Kitchen	RSCH-6002 - Qualitative Research & Development	RSCH-6003 - Quantitative Research	SFTY-XXX1 - Food Safety, Traceability or Quality Assurance/Legislation		NUTR-XXX3 - Nutrient Analysis and Food Labelling	CULN-XXX2 - Sensory Evaluation	BIOL-XXX2 - Food Microbiology 2	CULN-XXX3 - Culinary Innovation - Marketing	BUSI-XXX1 - Business Production Analysis & Forecasting	CAPS-XXX1 - Industry Engagement - Capstone	**# OF COURSES EVALUATING THE OUTCOME**
1. Assess food stability and food safety utilizing the principles of food science to ensure product quality.	**I**	**I**		**B**	**B**						**C**	**B**			**C**	**7**
2. Select industry best practices related to quality assurance, food safety, and legislation in the agri-business and food-processing sector.	**I**	**I**						**B**		**I**					**C**	**5**
3. Determine ingredient selection and preparation techniques for food product development.			**I**	**I**	**B**						**B**				**C**	**5**
4. Evaluate packing and storing techniques and procedures used in the production of agri-business and food-processing products to ensure food quality and safety.								**I**					**B**		**C**	**3**
5. Apply fundamental nutritional principles into all aspects of food production to ensure compliance with Canadian Food Industry Standards.			**I**							**B**					**C**	**3**
6. Develop food products using food chemistry, food microbiology and human physiology principles to broaden food product options in the market.	**I**	**I**	**I**	**I**	**B**						**B**	**B**			**C**	**8**
7. Assess budget and cost control methods in food processing.													**I**	**B**	**C**	**3**
8. Research and interpret information related to food innovation in agri-business and food processing to ensure economic viability.						**I**	**I**							**B**	**C**	**4**
9. Compile business/marketing related information to ensure marketability.						**I**	**I**						**B**	**B**	**C**	**5**
10. Present new product research persuasively and accurately in oral, written and graphic formats to support sales and marketing.						**I**	**I**						**B**		**C**	**4**
TOTAL # OF OUTCOMES EVALUATED BY EACH COURSE	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**		**2**	**3**	**2**	**4**	**3**	**10**	**47**
GM = General Education (mandatory) G = General Education (elective)																

NB - Only indicate the outcomes that are Taught & Evaluated (TE or TRE) in a course

PROGRAM COORDINATOR:

ASSOCIATE DEAN: James Smith

Date Completed: February 4, 2020

Analysis of Mapping Results:

APPENDIX E – Program Outcomes – Curriculum Map

PROGRAM MAPPING (Research & Development in Food Innovation	LEVEL ONE									LEVEL TWO						
PROGRAM ESSENTIAL EMPLOYABILITY SKILLS OUTCOMES	CHEM-XXX1 - Food Chemistry	BIOL-XXX1 - Food Microbiology 1	NUTR-XXX1 - Functional Nutrition	NUTR-XXX2 - Functional Nutrition - Ingredients and Additives (Practical)	CULN-XXX1 - Test Kitchen	RSCH-6002 - Qualitative Research & Development	RSCH-6003 - Quantitative Research	SFTY-XXX1 - Food Safety, Traceability or Quality Assurance/Legislation		NUTR-XXX3 - Nutrient Analysis and Food Labelling	CULN-XXX2 - Sensory Evaluation	BIOL-XXX2 - Food Microbiology 2	CULN-XXX3 - Culinary Innovation - Marketing	BUSI-XXX1 - Business Production Analysis & Forecasting	CAPS-XXX1 - Industry Engagement - Capstone	**# OF COURSES SUPPORTING THE OUTCOME**
Indicate with an 'x' where each skill is taught and/or reinforced and evaluated.																
The graduate has reliably demonstrated the ability to: (Source: MTCU Code)																
1. communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.													x		x	2
2. respond to written, spoken, or visual messages in a manner that ensures effective communication.						x	x									2
3. execute mathematical operations accurately.			x			x	x							x		4
4. apply a systematic approach to solve problems.													x	x		2
5. use a variety of thinking skills to anticipate and solve problems.					x						x				x	3
6. locate, select, organize, and document information using appropriate technology and information systems.						x	x	x							x	4
7. analyze, evaluate, and apply relevant information from a variety of sources.						x	x								x	3
8. show respect for the diverse opinions, values, belief systems, and contributions of others.				x							x				x	3
9. interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.	x	x													x	3
10. manage the use of time and other resources to complete projects.				x	x										x	3
11. take responsibility for one's own actions, decisions, and consequences.								x							x	
TOTAL # OF OUTCOMES SUPPORTED BY EACH COURSE	**1**	**1**	**1**	**2**	**2**	**4**	**4**	**2**		**0**	**2**	**0**	**2**	**2**	**8**	**29**

PROGRAM COORDINATOR:

ASSOCIATE DEAN: James Smith

Date Completed: February 4, 2020

Analysis of Mapping Results:

APPENDIX F

Program Delivery Information (PDI) Form to Calculate Program Funding Parameters
Total Hours Required per Student

College: Fanshawe College	Program title: Research & Development in Food Innovation

Indicate the number of hours that a student is required to spend in each instructional setting in each semester or level of this program. All hours in all instructional settings are to be noted.

Funded Instructional Settings*	**Semester/Level**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Classroom instruction	**195**	**195**								**390**
Laboratory/workshop/ fieldwork	**150**	**105**								**255**
Independent (self-paced) learning										
One-on-one instruction										
Clinical placement										
Field placement/work placement										
Small group tutorial										
TOTAL	**345**	**300**								**645**

Non-funded Instructional Settings*	**Semester/Level**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Co-op work placement - Mandatory										
Co-op work placement - Optional										
TOTAL										

*Definitions for each instructional setting can be found below.

Appendix G: Detailed Course Delivery

Program: Research & Development in Food Innovation **Starting Term:** Fall
School: Tourism, Hospitality & Culinary Art **Starting Year:** 2021

Course Code	Course Name	Hours	Weeks / Term	Course Status	No. of Sections	Proposed Section Size	Course Delivery Space (hours distribution per week)						Additional Comments
							Classroom	Laboratory	Dedicated Space	Computer Room	Other (describe)	None	
Level 1													
CHEM-XXX1	Food Chemistry	45	15	NEW	2	20	15	30					3 hrs/week
BIOL-XXX1	Food Microbiology 1	45	15	NEW	2	20	15	30					3 hrs/week
NUTR-XXX1	Functional Nutrition	30	15	NEW	2	20	30						2 hrs/week
NUTR-XXX2	Functional Nutrition - Indgredients and Additives (Practical)	45	15	NEW	2	20		45					3 hrs/week
CULN-XXX1	Test Kitchen	45	15	NEW	2	20		45					3 hrs/week
RSCH-6002	Qualitative Research Methods	45	15	EXISTS	2	20	45						3 hrs/week
RSCH-6003	Quantitative Research Methods	45	15	EXISTS	2	20	45						3 hrs/week
SFTY-XXX1	Food Safety, Traceability or Quality Assurance/Legislation	45	15	NEW	2	20	45						3 hrs/week
	Total	**345**											
Level 2													
NUTR-XXX3	Nutrient Analysis and Food Labelling	30	15	NEW	2	20	15	15			each week sections flip		2 hrs/week
CULN-XXX2	Sensory Evaluation	45	15	NEW	2	20	45						3 hrs/week
BIOL-XXX2	Food Microbiology 2	45	15	NEW	2	20		45					3 hrs/week
CULN-XXX3	Culinary Innovation - Marketing	45	15	NEW	2	20	45						3 hrs/week
BUSI-XXX1	Business Production Analysis & Forecasting	45	15	NEW	2	20	45						3 hrs/week
CAPS-XXX1	Capstone - Industry Engagement	90	15	NEW	2	20	45	45			Half LAB Half LECTURE		6 hrs/week
	Total	**300**											

Program Name: Research & Development in Food Innovation
Program type: Ontario College Graduate Certificate

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Incremental revenues												
Grants:	Notes											
Research & Development in Food Innovation	1	n/a	n/a	21,442	42,885	64,327	64,327	64,327	64,327	64,327	64,327	450,291
Tuition:												
Research & Development in Food Innovation	2,3,4	286,056	286,056	286,056	286,056	286,056	286,056	286,056	286,056	286,056	286,056	2,860,562
Program Specific fee **	5	0	0	0	0	0	0	0	0	0	0	0
Other associated revenue	6	34,538	34,538	0	0	0	0	0	0	0	0	69,075
sub-total		320,594	320,594	307,499	328,941	350,383	350,383	350,383	350,383	350,383	350,383	3,379,928
Incremental expenses												
Indirect salaries:												
Admin/Support staff	7.											0
Teaching salaries:												
Full time - number required		1	1	1	1	1	1	1	1	1	1	
- cost @	$144,674	144,674	144,674	144,674	144,674	144,674	144,674	144,674	144,674	144,674	144,674	1,446,740
Part time - hours per week req'd	8.	32	32	22	22	22	22	22	22	22	22	
- cost @	see below	108,793	108,793	74,256	74,256	74,256	74,256	74,256	74,256	74,256	74,256	811,631
Coord stipend		1	1	1	1	1	1	1	1	1	1	
- Cost @	$3,827	3,827	3,827	3,827	3,827	3,827	3,827	3,827	3,827	3,827	3,827	38,270
Curriculum Dev. @$25k/pgm year		25,000										25,000
International Recruitment Costs		35,744	35,744	35,744	35,744	35,744	35,744	35,744	35,744	35,744	35,744	357,440
One time costs - facilities		0										0
fitup/equipment												0
Other startup	9.	21,600	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	66,600
Operating expenses												0
Capital expenses	10.	183,500										183,500
sub-total		523,138	298,038	263,501	263,501	263,501	263,501	263,501	263,501	263,501	263,501	2,929,181
incremental cash inflows		-202,544	22,556	43,998	65,440	86,883	86,883	86,883	86,883	86,883	86,883	450,747
	CTO%		7%	14%	20%	25%	25%	25%	25%	25%	25%	

Net present value @ 8% $210,049

Notes:
1. Grant value per enrolment based on existing AGM2 program
2. Tuition based on 18/19 standard +3%. Program is 2 levels of 15 weeks, 30 weeks total.
3. 50%/50% domestic/international enrolments assumed
4. Based on lvl 1 enrolment total of 36, max 40
5. Unknown at this time. Will be offset by expense of the same amount.
6. Reasearch funding to cover backfill cost for FFT working on research project in first 2 years
7. Use existing lab Tech's
8. 33tch level 1, 30 tch level 2 = avg 30.5 + 3hrs coord backfill (lect = 1 sect, labs 2 sect) less 3tch for FFT in yr 1 & 2, -13 in yr 3-10
9. $15k Marketing, $5k operating costs(travel, instr supplies), $1600 Library resources
10. $183,500 Equipment/reno required
11. FFT position is based on approved research grant.

INPUT FIELDS

Tuition - domestic (per term)	lvl 1/2		$1,447.37	Tuition less bursary holdback
	lvl 3/4		$0.00	Tuition less bursary holdback
Grant (per term)	all levels		$1,949.31	
Program specific fee	all levels		$0.00	
Tuition - international (per term)	lvl 1/2		$7,221.00	Tuition less international student recovery
	lvl 3/4		$0.00	Tuition less international student recovery
Enrolment split	domestic		50%	
	international		50%	
Part time / Partial load	split %	PT	25%	verify rates/ratios
		PL	75%	
	hrly rate	PT	$95.07	
	(incl. ben's)	PL	$121.81	
Number of weeks for PT/PL			30	

YEAR 1

Enrolment table — Program name

	Domestic	Int'l	
level 1 - Fall	18	18	36
level 2 - Winter	15	15	30
level 3	0	0	0
level 4	0	0	0
	33	33	66

Tuition rates

	Domestic	Int'l
level 1	1,447.37	7,221.00
level 2	1,447.37	7,221.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	1,949.31	0.00
level 2	1,949.31	0.00
level 3	1,949.31	0.00
level 4	1,949.31	0.00

YEAR 2

Enrolment table — Program name

	Domestic	Int'l	
level 1 - Fall	18	18	36
level 2 - Winter	15	15	30
level 3	0	0	0
level 4	0	0	0
	33	33	66

Tuition rates

	Domestic	Int'l
level 1	1,447.37	7,221.00
level 2	1,447.37	7,221.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	1,949.31	0.00
level 2	1,949.31	0.00
level 3	1,949.31	0.00
level 4	1,949.31	0.00

YEAR 3

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	18	18	36
level 2 - Winter	15	15	30
level 3	0	0	0
level 4	0	0	0
	33	33	66

Tuition rates		
	Domestic	Int'l
level 1	1,447.37	7,221.00
level 2	1,447.37	7,221.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	1,949.31	0.00
level 2	1,949.31	0.00
level 3	1,949.31	0.00
level 4	1,949.31	0.00

YEAR 4

Enrolment table	Program name		
	Domestic	Int'l	
level 1 - Fall	18	18	36
level 2 - Winter	15	15	30
level 3	0	0	0
level 4	0	0	0
	33	33	66

Tuition rates		
	Domestic	Int'l
level 1	1,447.37	7,221.00
level 2	1,447.37	7,221.00
level 3	0.00	0.00
level 4	0.00	0.00

Grant values

	Domestic	Int'l
level 1	1,949.31	0.00
level 2	1,949.31	0.00
level 3	1,949.31	0.00
level 4	1,949.31	0.00

Research & Development in Food Innovation **November 2019**

Culinary innovators envision the future of food. They are responsible for new recipe, formula development and implementation within legislative standards, including food safety and nutrient labelling. Their unique ability to combine culinary creativity and food science will lead to work as product developers, product coordinators, food research and development specialist, food technologist and/or research product managers in the growing agribusiness, food manufacturing and processing industry.

This program combines instruction in food science, therapeutic nutrition, sensory evaluation, food research and development, culinary creativity with business courses in quality assurance, industry engagement.

Fanshawe College is presently investigating the possibility of offering a new Graduate Certificate in Research & Development in Food Innovation. This new program will include:

- Curriculum featuring advanced culinary techniques, therapeutic nutrition, sensory evaluation, nutrient analysis and food product labelling
- Trending topics in food and product testing
- Exciting new collaborative projects and networking opportunities with local food processing companies and agribusinesses.

Your responses to this short survey will help guide our plans in this development.

Would you be interested in taking this program?

Yes_____ No_____

Would you be inclined to recommend this new program to a friend? Yes_____ No_____

Are there other topical areas that you think this new development should include? Please list:

-
-
-

Thank you for contributing your thoughts in the development of this new program!

From: Yates, Colin <cyates@FanshaweC.ca>
Sent: January 22, 2020 3:54 PM
To: Academic Services Leadership Team <ASMT@FanshaweC.ca>; Co-ordinators <coordinators@FanshaweC.ca>
Cc: Hernandez, Stephanie <s_hernandez2@FanshaweC.ca>; Fraser, Adam <aefraser@FanshaweC.ca>; Butcher, Ian <ibutcher@FanshaweC.ca>; Kaszowski, Andrew <a_kaszowski@FanshaweC.ca>; Mahboob, Abdulla <amahboob@FanshaweC.ca>; Hollestelle, Julie <jhollestelle@FanshaweC.ca>; Pearson, Jodie <jpearson@FanshaweC.ca>
Subject: Colin's Call - January 22

Hello Everyone!

I apologize for the delay since the last installment. But all for good reason – CRI has hit the ground running in 2020!

As you can see the big news of the week is that CRI/Fanshawe has received its Cannabis Research License. This means that we can take our push into the food and beverage space to a whole new level and engage companies looking to bring out new products to the market. Thanks to Andrew Kaszowksi's social media push and RBM we are already having interested parties approach us for projects and to carry the news further abroad.

Staying on the theme of Food and Beverage product development

1. CRI recently started NSERC funded projects with Booch Organic Kombucha (if you have not tried their product please do), Food Safety Alliance, and Scattered Gold. We have a slew more in the hopper that I will be letting everyone know about very shortly.

2. James Smith, Dr. Mahboob and I have been busy interviewing for a Faculty to lead our Food Innovation research and programming. We have had some AMAZING applications and early interviews. We are looking forward to getting a talented individual onboard with us shortly to help us take our food innovation R&D to new levels!

After the past several months travelling around the region and talking to many companies it is clear that the growing food startup community is seeing the important role we can play in their company's growth. CRI is positioning Fanshawe as the go to R&D arm for the region in Food Innovation. Stay tuned as we have some more announcements on the Food Innovation front coming your way very soon!

Just a thank you to the regional campuses who continue to welcome me once per month. I am greatly enjoying the time spent at each campus. We will be bringing some industry activities your way very shortly.

Some house keeping items:

1. The 50% secondment for a Faculty to work with CRI on industry research projects was posted today (Thank you to the HR team for helping with my growing list of requests) - https://jobs.fanshawec.ca/applicants/jsp/shared/position/JobDetails_css.jsp

2. A brief reminder to our program coordinators, ADs and Deans to remind students to submit their project proposals for Research and Innovation Day. We would like to see strong

representation from all faculties. Competition between faculties for the most submissions is certainly welcomed! Here is the link for application forms: https://www.fanshawec.ca/ResearchandInnovationDay

3. Program coordinators please note we still do have some CVTA funds remaining to help bring industry projects into the classroom. Please reach out to Stephanie Hernandez before it is too late!

2020 is going to be a big year for CRI. I am looking forward to working with everyone as we continue to evolve and position ourselves as a real force of applied research among Canadian Colleges.

Regards

Colin

Colin N Yates, PhD
Chair, Centre for Research and Innovation

Centre for Research and Innovation
1001 Fanshawe College Blvd. London, ON N5Y 5R6
T: 519-452-4430 x4121
cyates@fanshawec.ca
www.fanshawec.ca

FANSHAWE

Academic Capital Requests for RDFI program development - January 2020 - FACULTY OF CREATIVE INDUSTRIES

Faculty	Project	Description	Rationale	Renovaton or Equipment or Both	Cost Estimate	Faculty Rank	ALT Rank	Decision Notes
	RDFI	Lab Grade Fridge and Freezer	This equipment is going to be essential for completing lab work for RDFI program with in the times alotted by being able to refrigerate and freeze samples to test life and texture etc. and have dedicated refrigeration for this work. 2 Refrigerators and 2 freezer	Both	8000			
	RDFI	Canning and Jarring Small production Line. - $5k	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	Both	5000			
	RDFI	Shelf Life testing equipment - $50000	Shelf Life testing equipment. Oxidation analysis and Microbial analysis equipmen. Research, innovation and development for RDFI program in lab 319	Both	60000			
	RDFI	Brix Measuring equipment (Sugar measurement)	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	equipment	2,000			
	RDFI	Viscosity Measurements (For canning, jarring, sauces etc. research and development- $10k	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	equipment	10,000			
	RDFI	Craft Beer making equipment - $10k - vat, mash,	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	Both	15,000			
	RDFI	Small Scale Wine making equipment - $10k - vat, mash	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	Both	10000			
	RDFI	PH metre	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	equipment	1500			
	RDFI	Calorimetre	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	equipment	10000			
	RDFI	Glass ware- Test tubes and beakers etc	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	equipment	2000			

Faculty	Project	Description	Rationale	Renovaton or Equipment or Both	Cost Estimate	Faculty Rank	ALT Rank	Decision Notes
	RDFI	Micro Pipettes – range of sizes for a class with 10 stations (students in pairs) - $60,000	This equipment will enhance the learning and support research and development work for all programs and in large the RDFI new program as well as entrepreneurial initiatives for the many programs in the STHCA.	equipment	60,000			
					$ 183,500.00			

FANSHAWE

ADVISORY COMMITTEE MEETING
"Research & Development in Food Innovation"

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As part of the program development process, we strive to engage community members in a variety of ongoing capacities. Please indicate which of the following you would be willing and able to do:

- ☑ Advise on detailed curriculum development
- ☑ Continue as a member of a permanent Advisory Committee (meet 1-2x/year)
- ☐ Provide a field placement. If checked, please indicate how many students you could accommodate _____.
- ☐ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program

If you checked any of the above, please provide the information below (print clearly) and leave this sheet with us. Once again – our sincere thanks!

Name and Title: Jack Adams

E-mail Address: Jadams@ledc.com

Mailing Address:

Telephone(s): Bus #_____ Cell # 226 448 0934

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- ☑ Provide a field placement. If checked, please indicate how many students you could accommodate 40+.
- ☑ Teach part time in the program
- ☑ Attend classes as a guest speaker
- ☑ Provide a tour
- ☑ Provide a scholarship or award for a student/graduate
- ☑ Donate equipment, materials, or funds to the program

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Name and Title: Chef Matthew Agbetiafa Vice President / Executive Chef

E-mail Address: matt@livefitfoods.ca

Mailing Address: 900 King Street London, Ontario

Telephone(s): Bus #_____ Cell # 226-236-9944

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Name and Title: Lisa Estrada / President - Buen Sombrero.

E-mail Address: blackSombrero.mc@gmail.com.

Mailing Address:
14445 - 15 Mile Rd, RR2 DEDFIELD, ONT
NOM 1P0

Telephone(s): Bus # 519-639-0294 (Alberto) Cell # 519-280-0293 (Lisa).
Co-owner.

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- ☑ Teach part time in the program - potentially would need more information
- ☑ Attend classes as a guest speaker
- ☐ Provide a tour
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If you checked any of the above, please provide the information below (print clearly) and leave this sheet with us. Once again – our sincere thanks!

Name and Title: Leanne Varao - Nestle Sr. Product Development Specialist.

E-mail Address: leanne.varao@~~gm~~ca.nestle.com

Mailing Address:
Nestle. 990 Wilton Grove Rd
London, ON N6A 1C5

Telephone(s): Bus # 5196804075 Cell # 5196397642.

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Name and Title: Dan Gurnett VP Strategy (Booch Inc.)

E-mail Address: dan@boochorganickombucha.com

Mailing Address:
1027 Clarke Rd. London, ON, N5V 3B1

Telephone(s): Bus #_____ Cell # 226-237-1491

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Name and Title: DAVID BURNETT - SENIOR CULINARY DEVELOPMENT MANAGER

E-mail Address: david_burnett@McCORMICK.COM

Mailing Address: 4H4 #2 600 CLARKE ROAD LONDON ON N5V 3K5

Telephone(s): Bus # 519-432-7311 x3908 Cell # 519-719-4997

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- ☐ Provide a tour
- ☐ Provide a scholarship or award for a student/graduate
- ☐ Donate equipment, materials, or funds to the program..possibly??

If you checked any of the above, please provide the information below (print clearly) and leave this sheet with us. Once again – our sincere thanks!

Name and Title: _DEANNA ZENGER

E-mail Address: dzenger@fpsc-ctac.com

Mailing Address:

3030 Conroy Road Ste 201
Ottawa, ON K1G2C6

Telephone(s): Bus #613-237-7988 Cell 519-568-8403 (most used)

Research and Development in Food Industry (RDFI1)

Program Development- External Focus Group
February 10th, 2020, 1-4 pm
LDB 602- Fanshawe College, Downtown Campus

PRESENT:
External:

Leanne Varao	Nestle Canada
David Burnett	McCormick Canada
Deanna Zenger	Food Processing Skills Canada
Matthew Agbetiafa	LiveFit
Amy Blackshaw	Grand River Foods
Dan Gurnett	Booch Organic Kombucha
David Corke	London Training Centre
Jack Adams	LEDC
Lisa Estrada	Black Sombrero
Grayson Estrada	Black Sombrero

Internal:

Tracy Jones	Program Developer
Tracy Gedies	Dean, Faculty of Creative Industries
Patti Kaye	Curriculum Consultant
Lauren Ford	Assistant to the Associate Dean of the School of Tourism, Hospitality and Culinary Arts

REGRETS:

James McKenzie	Ingredion Canada
James Smith	Associate Dean, School of Tourism, Hospitality and Culinary Arts

Summary of Recommendations

Employer Expectations of a Program graduate

1. CAPSTONE project – recommended that we dedicate more than 90 hours to complete a real life industry project.
2. Set the projects up by sector – meat, dairy, desserts, etc.
3. Provide students with an overview that outlines the foundations of the basic processes and aspects of a manufacturing plant/production line.
4. Provide Mentorships/Co-ops that take place 1-3 days a week, per semester.
5. Smaller vendors suggest providing general exposure/mentorship system as opposed to a structured co-op internship. For smaller companies, a mentorship would have to be a part of the ongoing process
6. Program should build partnerships with larger companies and get permission to include information about logos for promotion of the program – Logos are very powerful, and can sway individuals.

Experiential Learning Requirement

1. Foundation course required – to teach students how to become an effective R & D or QA personnel.
1. Provide a guide of the 'STI's (Standards of Identity) – explain to the students how to navigate the rules of the guide – these rules are set as industry standards, and will be important facts to know for an interview.
2. Provide training in formula costing and return on investing (basic business/Accounting principles) as part of a Business Production Analysis & Forecasting course within the program
3. Provide mentorships and co-ops to allow a student to get substantial experience and exposure within the industry.
4. Industry partners agreed that the program should move away from 'production' and focus on specializing in Food Innovation. Note: students need to be informed that the easiest and most useful entrance point into the industry is on the production line.
5. Provide tours of a production line within the curriculum, to ensure that students still have that crucial experience (EMC can offer tours).
6. Final project – should be to develop a product – groups of 2 or 3 students, have the students go to vendors and work on real industry projects with real industry partners. The students will:
    - Design the product
    - Breakdown the manufacturing aspects of creating the product – cost, material, labour, etc.
    - Design the package
    - Complete the testing
    - Create a business proposal

Depth of Technology Required

1. Fanshawe staff plan to visit other colleges to review potential equipment needs.
2. Expose students to various types of production systems that they may be expected to use or be aware of.

Promoting the Program

1. Keep the word 'innovation', but pull the title away from just 'Research and Development' in order to broaden the title.
2. Use a whiteboard and place the words on there, in order to brainstorm various title ideas.
3. Break out #2 of the VLOs– suggest that QA & food safety are one area of knowledge, while legislation is another area of knowledge

Research, Innovation and Entrepreneurship

1. Provide a mentorship/internship system, which will give graduates actual working experience within the industry.
2. Provide specialized training - including tours.
3. Provide opportunity for students to present to industry partners their RFP research completed within the program.

Detailed Minutes

New Program Development Process & Ministry Requirement – Patti Kaye and Tracy Jones

The following was reviewed as background and context regarding the meeting's purpose:

- Fanshawe's 3 stage program development plan:
  - Stage 1 – New program Idea Generation - completed
  - Stage 2- Current stage – Collective Consultation:
    - Meet with the external stakeholders panel
    - Put together a business plan
    - Review cost of equipment and teaching tools
    - Learning outcomes are developed
    - Curriculum becomes validated
  - Stage gate 3 –Implementation - go to Board of Governors for their approval:
    - Resource planning development process
    - Marketing Plan development
    - Detailed Curriculum development

  (diagram outlined in slides)
- Importance of external consultation from both smaller, newer vendors as well as larger, established vendors in order to gain a variety of perspectives
- Vocational learning outcomes for the RDFI1 program (outlined in electronic package)
- Essential employability skills, soft skills and industry knowledge required

Program Development Overview & Data – RDFI1- Patti Kaye and Tracy Jones

The following was reviewed as background and context for the development of this new program:

- Course list and hours - 1 year of training- 600 hours total (outlined in electronic package)
- 2 terms – 300 hours per term
- 20 domestic & 20 international
- 120 students surveyed – 50% said they'd have a strong interesting in food processing management
- 5% of degree students will be looking for their vocational equivalent
- Fanshawe has an articulated transfer credit program with Brescia, so students can transfer over
- Graduate certificate training program - a focus on transitioning culinary and food grads into the food processing sector, specifically targeting the following positions:
    - Food Technologist
    - Research and Development Technologist
    - Packaging Technologist
    - Development Technician
    - R&D / QA Coordinator
    - Project Coordinator
- Skills required for success within the industry:
    - Product testing for food safety, shelf life, stability, nutrient analysis
    - Maintaining a healthy and safe work environment – practical applications of food safety standards
    - Ingredient selection, recipe testing, reformulation
    - Packing and storing
    - Marketing
    - Collaborative communications
- 19 potential feeder programs in Ontario
- 2-3 new food-processing businesses expected in our region for the next 20-25 years

New Vocational Learning Outcomes – Patti Kaye and Tracy Jones

The following was reviewed as the proposed new VLOs:

- Apply appropriate testing processes that assess food stability and food safety utilizing the principles of food science.
- Select industry best practices that support effective practical application related to quality assurance, food safety, and legislation in the agri-business and food-processing sector.
- Determine ingredient selection and preparation techniques for innovative food product development.
- Evaluate packing and storing techniques and procedures used in the production of agri-business and food-processing products.
- Apply fundamental nutritional principles into all aspects of food production.
- Develop innovative food products using food chemistry, food microbiology and human physiology principles.
- Assess budget and cost control methods in food processing.
- Research and interpret information related to food innovation in agri-business and food processing to ensure economic viability.

- Compile business/marketing related information persuasively and accurately in oral, written and graphic formats.

Panel Discussion

The panel was overwhelmingly supportive of this program development and recommended more.

Employer Expectations of a Beginning Practitioner

The panel discussed the following regarding employer expectations of a beginning practitioner:

- Professionalism
- Must have had a degree or a diploma before entering and completing this certificate
- Must have achieved a high GPA
- Interest in food and be able to work in the food processing industry
- Knowledge of legislation and regulation (e.g. food safety, health and safety inspection, Ministry requirements) including:
    1. Knowledge of "Hazard Analysis Critical Control Point (HACCP) https://www.fda.gov/food/hazard-analysis-critical-control-point-haccp/haccp-principles-application-guidelines
    2. Knowledge of the BRC Global Standard for Food Safety https://www.foodchainid.com/certification/brc-food-safety-certification/
    3. International Organization for Standardization (ISO) https://www.google.com/search?q=iso&rlz=1C1GCEB_en___CA872&oq=iso&aqs=chrome..69i57j0l7.526j0j4&sourceid=chrome&ie=UTF-8
- Knowledge of industry trends, for example lifestyles products
- Ability to qualify for Research & Development positions or Quality Assurance positions
- Would require the appropriate background before completing the program – Nutrition and Food Services Management and/or Culinary Management
- Knowledge of the current food systems within the government
- Essential Employability Skills:
    - Ability to communicate professional and effectively
    - Numeracy skills
    - Critical thinking and ability to problem solve
    - Report writing
    - Good communication & interpersonal skills
    - Information Management

Expected trends in the next 5 years:

The panel discussed the following regarding expected trends in the next 5 years:

- Food processing – becoming the largest sector of development in the economic market
- Increase in the following trends, especially within the 18-35 age market:
    - Ready to eat meals being developed
    - Diet-based food choices
    - Healthy food living – 'lifestyle' foods – trend

    - Food mail shipping
    - Plant-based
    - Increased diversity in the food production environment
    - Whole foods
    - Buying local
    - Consumer packaged goods and food service sides - McDonalds, Jack Astor's, for ex.
- Food beverages is becoming the quickest growing sub- sector within food processing – within Southwestern Ontario alone- 14 craft breweries, 3 spirit makers, cannabis-related food processing companies (front-loaded at this time)
- Sustainability and origin are important - individuals want to know where from and how their product is created
- Current trends in students:
    - International students - Hard workers, innovative thinkers and keen to assimilate within Canadian society
    - In general, students want to know how their work impacts positively upon the company they work for and more largely, the community they live within
    - Current job seekers are job hoppers – individuals who seek multiple jobs over the lifetime of their careers. The RDFI1 program could be a good opportunity to allow these individuals to take step into this field of work.
- In the next 5 years up to 60% of manufacturing staff are retiring.
- This program could help stop the drain of individuals moving from the food industry into banks and other institutions.

Depth of Technology Required

The panel discussed the following regarding depth of technology required:

- Automation processes are currently being created
- Large discrepancy in technological processes between new and established vendors
- Pilot plants are a requirement – high levels of maintenance required (i.e. cleaning)
- There remains a large need for production line employees.
- Understanding required regarding difference between how things are created on the bench vs. how they are created in an industrialized environment.
- Required to create certain recipes and understand how to manage production of large quantities of material & labour on a manufacturing level.

Experiential Learning Requirement

The panel discussed the following regarding the experiential learning requirement:

- Strong interest in food processing management
- Knowledge of effective processing of food once manufactured
- Students will need to have a general idea of appropriate testing processes that assess food stability and food safety
- Will need an understanding of universal testing procedures:
    1. Reading a certificate of analysis – including a micro
    2. PH testing
    3. Bricks testing

4. Thickness and viscosity testing
5. General understanding of testable measures to confirm the quality of the product

- Understanding of the purpose and structure of production lines
- Students may need to connect with vendors outside of London to achieve a Co-op for everyone
- Smaller companies will take experience over qualifications
- Larger companies will take qualifications over experience
- The mentorship/internship system– will give graduates actual working experience within the industry
- Training will include tours, mentoring and perhaps a co-op possibility – this will help ensure that students learn through practicum as well as theory

Promoting the Program

The panel discussed the following regarding promoting the program:

- Name of the program – 'Research Development in Food Innovation' – only advertises one aspect of the course.
- The RDFI title seems very specific – perhaps include the term 'Culinary' or 'Food Science' within the description, to make the title more inclusive.
- LEDC has volunteered to promote the program.

Research and Innovation & Entrepreneurship

The panel discussed the following regarding research and innovation & Entrepreneurship:

- Provide students with simulated activities – i.e. a pilot plant
- Ability to perform task analysis (e.g. understand manufacturing workflow, staffing, costing of food and equipment, etc.)
- Have to create a happy balance between an applied skillset and applied knowledge base
- Some applicants completing this program may have plans to create their own business and become entrepreneurs in their own right
- This is a niche program. The demand is there for at least 40 students, but the program may not grow unless another pillar is included.

Feedback sent via email:

Employer Expectations of Program Graduates

Deanna Zenger:

We have learned what works and what doesn't work from both the participant and employer end. I can provide some very candid experiences that may save you some time and grief. We want Fanshawe to be successful and our industry can use as many partners as possible to grow. There are a few tools we have that you may find extremely helpful and they are yours to use!

The most important comment I will make here is that industry and colleges have embraced the LRF I sent wholeheartedly in particular. We have done the hard work in putting this together. It allows content and program developers the ability to create what industry states are the competencies and knowledge flow they want to see and provide structured programming from their organization.

Next Steps:

- Representatives to plan a time to tour Nestle plant – specifically the pilot plants
- LiveFit has just moved and has a great deal of space, interested in a conversation and tour
- Fanshawe is currently interviewing for a subject matter expert in Food Science
- Lauren Ford to send out a condensed version of the Learning and Recognition Framework Model to the delegates

Adjournment

The meeting adjourned at 4:00 pm.